ENVIRONMENTAL EVALUATION GROUP

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Pu-239 MONITORING FACT SHEET

Summary:

A small quantity of plutonium 239 (Pu-239) was detected in effluent air from the WIPP underground during June 2003. The calculated dose to a hypothetical maximum exposed individual member of the public is trivial, well less than 0.1 millirem (well less than 1/3000 of the annual dose from naturally occurring background radiation) and well less than US EPA requirements that are fully protective of the public health and safety. Samples from EEG environmental monitoring stations around the WIPP site have not detected any increase in radioactivity above the EEG preoperational sample results.

Introduction:

The Environmental Evaluation Group detected a small quantity of Pu-239 in a June 2003 effluent air sample taken at the Waste Isolation Pilot Plant. Samples are continuously taken from effluent air coming from the underground. The effluent air is sampled near the surface at Station A and filters are periodically analyzed in the EEG Laboratory for transuranic isotopes, the same isotopes that are disposed in the WIPP.

Series of Events:

1. On February 25, 2004 EEG received a telephone call from the Acting Director of the Carlsbad Environmental Monitoring and Research Center (CEMRC), indicating that they had found measurable Pu-239 activity in their Station A quarterly composite sample from the second quarter of 2003. CEMRC composites their effluent air samples quarterly, rather than monthly.

2. EEG rearranged its normal queue for sample analysis in order to promptly accommodate this recent development. EEG immediately began radiochemical analyses for Pu and Am isotopes in monthly composite samples from April through July, 2003 collected at Station A, Skid A3 (the skid of record), Station A, Skid A1 (the backup skid), and Station D, located near the bottom of the exhaust shaft. Station D samples exhaust air only from the waste disposal area since exhaust air from the waste shaft and experimental areas bypasses Station D. Also, Station D was inoperable pending repair by DOE during the last 10 days of May and the first 17 days of June 2003. The analyses from all the

sampling stations were completed on March 15, 2004 and the results are shown on the following table.

Summary of EEG Sampling Results

Month (or Quarter)	Location	Pu-239	Pu-238	Am-241
April 2003	Sta. A, Skid A3	<MDA*	<MDA	<MDA
May 2003	Sta. A, Skid A3	<MDA	<MDA	<MDA
June 2003	Sta. A, Skid A3	1 dpm**	<MDA	<MDA
June 2003	Sta. A, Skid A1	1 dpm**	<MDA	<MDA
June 2003	Sta. D	<MDA	<MDA	<MDA
July 2003	Sta. A, Skid A3	<MDA	<MDA	<MDA
July 2003	Sta. D	<MDA	<MDA	<MDA
2nd Quarter 2003	Site Environmental Samplers (3 Locations)	<MDA	<MDA	<MDA

* MDA means minimum detectable activity, < MDA means less than the minimum detectable activity

**The Pu-239 activity observed at Skid A3 and Skid A1 from June 2003 is about 30 times greater than the EEG minimum detectable activity. dpm = disintegration-per-minute, i.e. nuclear transformation per minute.

3. Detection of Pu-239 by the other monitoring groups (CEMRC and Washington TRU Solutions) in their Station A samples from June (or second quarter) 2003 was confirmed by telephone on March 15, 2004 and March 17, 2004. Thus, three different laboratories detected Pu-239 on four (4) discrete samples during the same time period. Additional information will be in the next EEG Environmental Report.